

### **REMARKS**

With claims 5-8, 16-17, 20-21, 23-26 and 32-33 pending, claim 17 has been amended to put it in independent form.

#### **Section 103 Rejection**

Claims 5-8, 16 and 23-24, and 32-33 stand rejected under 35 U.S.C. 103 as being unpatentable over Patel et al. (hereafter Patel) in view of Dozier, II et al. (hereafter Dozier). The Office Action states that Patel teaches a cooling assembly comprising: an electronic package 405 shown in Figs. 5-6 having a cavity 409; a plurality of dies 401; a bottom substrate 403 wherein active electronic components face the bottom surface 403 and a coolant surrounding interconnects within the cavity 409; an inlet 411 and an outlet 413 coolant ports that allow the coolant to enter the cavity 409, wherein each die has at least one active surface associated with respective active electronic components, and wherein the coolant is circulated in the cavity so the coolant directly cools each active surface of each die 401.

The Office Action continues stating that Patel does not teach said interconnects being compliant and comprising lithographic springs. The Office Action states, however, that Dozier does teach IC photographically patterned spring contacts in Fig. 2. The Office Action then states that it would have been obvious “to employ IC photo lithographically patterned spring interconnects as they are taught by Smith et al (believed a typo intended to reference Patel) in the device by Tilton et al (believed a typo intended to reference Dozier) in order to further decrease mechanical stress caused by thermal expansion of the components (to reduce thermal gradients on each active surface of each die.) This rejection is respectfully traversed.

The “die 401” as identified by the Office Action to be in Patel are identified in col. 8, lines 16-24 of Patel which states:

“With reference to FIG. 5, the third embodiment of a cooling system is for cooling one or more components 401 made from heat-generating **chips** on one or more component substrates, which are in turn mounted on a component-carrying substrate 403 (i.e., a substrate that receives one or more components, typically by **receiving a plurality of leads** from each carried component). The carried components can be covered (i.e., lidded or encapsulated) or uncovered (i.e., exposed).” [emphasis added]

Thus, the components 401 are identified as “chips” with “a plurality of leads.” The components 401 are later identified as “housing the semiconductor devices” in col. 8, lines 46-47. No “die” is mentioned apart from that contained in component 401 made up of a chip on a lead frame. The leads are not disclosed in Patel to be other than conventional leads which are not “compliant interconnects” as indicated by the Office Action claimed.

In contrast to the Office Action assertion, Applicant maintains that a person of ordinary skill would not be motivated to change the leads on components 401 to the resilient contacts claimed. First, in Figs. 5 and 6 of Patel where component 401 is shown, only the leads connect the component 401 to the component carrying substrate 403. Nothing contacts the surface of component 401 opposite the leads to apply pressure to the leads so that stress relief provided by the leads would be needed. Further, dies are typically attached in a chip housing to leads by wire bonds, so thermal expansion of die components will not be relieved by resilient leads as indicated in the Office Action. Thus, a person of ordinary skill using Patel would not be motivated to change the conventional leads to use the resilient contacts of Dozier as indicated. Claims 5-8, 16, 23-24 and 32-33 are thus believed allowable as non-obvious over Patel in view of Dozier.

#### **Allowable Claims**

Claims 17, 20-21 and 25-26 are indicated by the Office Action as allowed.

## Conclusion

In light of the above amendments and remarks, claims 5-8, 16-17, 20-21, 23-26 and 32-33 are now all believed to be in condition for allowance. Accordingly, reconsideration and allowance of these claims is respectfully requested.

No fee is believed due with this response. Should a fee be due, the Commissioner is hereby authorized to charge the fee to Deposit Account No. 06-1325.

Respectfully submitted,

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